Listing of Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for identifying rare events in a biological sample, comprising:

obtaining a source of cells;

contacting the source with a binding agent specific for a cell specific marker associated with a rare event and expressed by at least some of the cells, wherein the binding agent is bound to a magnetic bead and wherein the binding agent binds to cells in the source expressing the cell specific marker;

separating cells bound by the binding agent from the source thereby obtaining a sub-population of cells enriched for the cell specific marker associated with the rare event;

placing the enriched sample on a substrate;

automatically scanning the substrate at a plurality of coordinates;

automatically obtaining a plurality of images at locations on the substrate that comprise the enriched sample; and

processing the plurality of ~~image~~ images to identify the rare event.

2. (Original) The method according to claim 1, wherein the birding agent is an antibody.

3. (Original) The method according to claim 1, wherein the sub-population is enriched for carcinoma cells.

4. (Original) The method of claim 1, wherein the separating is done by positive selection.

5. (Original) The method of claim 1, wherein the separating is done by negative selection.

6. (Original) The method of claim 2, wherein the antibody is monoclonal or polyclonal.

7. (Original) The method of claim 2, wherein the antibody recognizes an epithelial marker.

8. (Original) The method of claim 2, wherein the antibody is selected to avoid cross reactivity with the beads.

9. (Original) The method of claim 3, wherein the carcinoma cells are from peripheral blood.

10. (Original) The method of claim 1, further comprising:

(a) automatically identifying a coordinate of the rare event; and

(b) automatically acquiring an image of the rare event, at the location coordinates.

11. (Original) The method of claim 1, wherein the rare event is detected by immunohistochemistry.

12. (Original) The method of claim 1, wherein the rare event is detected by in situ hybridization.

13. (Original) The method of claim 1, wherein the rare event is detected by a stain.

14. (Original) The method of claim 13, wherein the stain is a nucleic acid dye selected from the group consisting of hematoxylin, Giemsa stain, methyl green, Nuclear Fast-Red, Hoechst 33342, Hoechst 33258, thiazole orange, DAPI, ethidium bromide, propidium iodide, TOTO, YOYO-1, SYTOX Blue, SYTOX Green, 7-Aminoactinomycin, 9-Amino-6-chloro-2-methoxyacridine, and acridine homodimer.

15. (Currently Amended) The method of claim 13, wherein the rare event is stained with a cytoplasmic dye ~~such as eosin or Kleihauer-Betke cytochemical stain or a combination thereof~~.

16. (Original) The method of claim 1, wherein the cell specific marker is detected by a nuclear stain and counterstain.

17. (Original) The method of claim 1, wherein the cell specific marker is detected by immunohistochemistry, in situ hybridization, staining or a combination thereof.

18. (Original) The method of claim 1, wherein the image is a digital image.

19. (New) The method of claim 13, wherein the rare event is stained with eosin, Kleihauer-Betke cytochemical stain, or a combination thereof.

20. (New) The method of claim 1, wherein processing the plurality of images comprises:

placing adjacent of the plurality of images together to generate a composite image having a field of view larger than the fields of views of the plurality of images; and

identifying a candidate rare event in the composite image.

20. (New) The method of claim 1, wherein processing the plurality of images comprises:

identifying a candidate rare event;

determining coordinates for the candidate rare event; and

obtaining additional images of the candidate rare event.

21. (New) The method of claim 1, wherein processing the plurality of images comprises:

identifying a collection of candidate rare events;

generating a mosaic comprising images of the candidate rare events in the collection.

22. (New) The method of claim 21, wherein processing the plurality of images further comprises presenting the mosaic to a user.